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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,513	07/13/2001	Arnold Kholodenko	6089/CALB/ECP/PJS	3332

32588 7590 06/11/2003

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EXAMINER	
NICOLAS, WESLEY A	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/905,513	KHOLODENKO, ARNOLD	
	Examiner	Art Unit	
	Wesley A. Nicolas	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-45 is/are pending in the application.

4a) Of the above claim(s) 28-45 is/are withdrawn from consideration.

5)☒ Claim(s) 21 is/are allowed.

6)☒ Claim(s) 1-20, 22-27 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,5 .
4) ☒ Interview Summary (PTO-413) Paper No(s). 6 .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-27, drawn to an apparatus, classified in class 204, subclass 224R.

   II. Claim 28, drawn to a seal, classified in class 277, subclass 590+.

   III. Claims 29-45, drawn to a method, classified in class 205, subclass 118.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions III and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced by another and materially different apparatus such as an apparatus which doesn't have a thrust plate.

Inventions III and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process, such as a process which does not include electrodeposition.

Inventions I and II are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this case product as claimed can be made by another and materially different apparatus such as an apparatus which is not for electrodeposition.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II or Group III, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Todd Patterson on May 20, 2003, a provisional election was made **with** traverse to prosecute the invention of Group I, claims 1-27. Affirmation of this election must be made by applicant in replying to this Office action. Claims 28-45 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4, and 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Woodruff et al. (6,080,291).

Claim 1 is rejected because Woodruff et al. teach an apparatus for electro-chemical deposition on a substrate, comprising:

- an annular contact ring (Fig. 4, numeral 42 and col. 7, line 59: "annular contact ring");
- one or more electrical contact pads disposed on the contact ring (Fig. 4, numeral 42);
- a first seal disposed inward of the electrical contact pad and providing a seal with the contact ring (Fig. 4, numeral 50);

- a thrust plate adapted to move axially relative to the contact ring (Fig. 4, numeral 64); and
- a second seal coupled to a side of the thrust plate facing the contact ring (Fig. 4, numeral 60).

Claim 2 is rejected because Woodruff et al. teach that the first seal comprises a base disposed in a groove at least partially formed in the contact ring (Fig. 4, numerals 42 and 50 adjacent to each other); and a lip extending from the base, the lip having at least one sealing surface (Fig. 4, numeral 50 contacting substrate W).

Claim 3 is rejected because Woodruff et al. teach that the lip further comprises a first sealing surface adapted to seal with the substrate (Fig. 4, interface between numeral 50 and W) and a second sealing surface adapted to seal with the contact ring (Fig. 4, numerals 42 and 50 adjacent to each other).

Claim 4 is rejected because Woodruff et al. teach that the contact ring further comprises: a first surface (Fig. 4, numeral 42), a shoulder coupled to the first surface (Fig. 4, numeral 35), a substrate support surface extending inward from the shoulder and supporting the electrical contact pad thereon (Fig. 4, numerals 35 and 44), the substrate support surface and shoulder defining a substrate receiving pocket (col. 7, lines 20-34: "guide surface"), and an inner ring surface disposed radially inward of the substrate support surface (Fig. 4, numeral 42 at point where it meets the substrate W), the inner ring surface in sealing communication with the first seal (Fig. 4, numerals 42 and 50 adjacent to each other).

Claim 9 is rejected because Woodruff et al. teach that the thrust plate and the first seal define a plenum that is evacuated to chuck the substrate to the thrust plate (Fig. 4, airspace between numeral 64 and W).

Claim 10 is rejected because Woodruff et al. teach that the first and second seal are adapted to sandwich the substrate therebetween when the contact ring and the thrust plate are moved towards each other (col. 8, lines 23-50).

9. Claims 22-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Crafts et al. (5,807,469).

Claim 22 is rejected because Crafts et al. teach an apparatus for electro-chemical deposition on a substrate, comprising:

- an insulative coating (col. 8, lines 3-13); and
- an annular conductive body at least partially covered by the insulative coating (col. 8, lines 3-13), the conductive body comprising:
    - o a top surface having a flange (Fig. 8, edge on left side of figure), a substrate seating surface and a shoulder disposed between the flange and the substrate seating surface (Fig. 8, shoulder at interface between numeral 214 and 230); and
    - o at least one conductive pad disposed on the substrate seating surface (Fig. 8, numeral 214).

Claim 23 is rejected because Crafts et al. teach that the conductive body further comprises a cylindrical wall disposed between the shoulder and the substrate seating

surface (Fig. 5, numeral 210), the cylindrical wall and the substrate seating surface defining a substrate receiving pocket (Fig. 4, numeral 19 and Fig. 5, numeral 210).

Claim 24 is rejected because Crafts et al. teach of a seal disposed proximate an inner diameter of the conductive body (col. 8, lines 3-13: "dielectric surface 226 which prevents the deposition of metallic ions onto the contact").

Claim 25 is rejected because Crafts et al. teach that said seal extends above the substrate seating surface when in a free state (Fig. 8, numeral 230 is above numeral 214).

Claim 26 is rejected because Crafts et al. teach that the at least one exposed conductive pad comprises a single ring (Fig. 5, numeral 202).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 5-8 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woodruff et al. (6,080,291) as applied to claims 1 above, and further in view of Kholodenko et al. (5,885,469).

Woodruff et al. are as applied, argued, and disclosed above and incorporated herein but fail to specifically teach a plurality of conductive pads and the use of at least three seals.

Kholodenko et al. each the use of at least three seals (Fig. 2, numerals 116, 107, and 103) and the use of a plurality of conductive pads (Fig. 2, numeral 120).

Claims 5, 8 and 11 are rejected because it would have been obvious and within the ordinary skill in the art at the time the invention was made to have modified Woodruff et al. to use a third seal as taught by Kholodenko et al. because Kholodenko et al. teach of a third seal (Fig. 2, numerals 116, 107, and 103) which would have increased the overall sealing efficiency of the apparatus.

Claim 6 is rejected because Woodruff et al. teach that at least one of the first, second or third seal is comprised of elastomer (col. 8, line 19: "elastomeric material").

Claim 7 is rejected because Woodruff et al. teach that the second seal extends further from a bottom of the thrust plate and the second seal (Fig. 4, numeral 60 and its orientation with respect to numeral 64).

Claim 12 is rejected because Woodruff et al. teach that the contact ring further comprises:

- a first surface (Fig. 4, numeral 42);
- a shoulder coupled to the first surface (Fig. 4, numeral 35);

- a substrate support surface extending inward of from the shoulder portion and supporting the electrical contact pad thereon (Fig. 4, numerals 35 and 44), the substrate support portion and the shoulder defining a substrate receiving pocket (col. 7, lines 20-34: "guide surface"); and
- an inner ring surface disposed radially inward of the substrate support portion (Fig. 4, numeral 42 at point where it meets the substrate W).

Claim 13 is rejected because Woodruff et al. teach that the first and second seal are adapted to sandwich the substrate therebetween when the contact ring and the thrust plate are moved towards each other (col. 8, lines 23-50).

Claim 15 is rejected because it would have been obvious and within the ordinary skill in the art at the time the invention was made to have modified Woodruff et al. to use a plurality of conductive pads as taught by Kholodenko et al. because Kholodenko et al. teach the use of a plurality of conductive pads (Fig. 2, numeral 120) which would have increased the contact efficiency between the conductor and the substrate.

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Woodruff et al. - Kholodenko et al. combination as applied to claim 11, and further in view of Crafts et al. (5,807,469).

The Woodruff et al. - Kholodenko et al. combination are as applied, argued, and disclosed above and incorporated herein but fail to specifically teach of a conductive material covered with an insulative covering.

Crafts et al. teach of a conductive material covered with an insulative covering (col. 8, lines 3-14).

Claim 14 is rejected because it would have been obvious and within the ordinary skill in the art at the time the invention was made to have modified the Woodruff et al. - Kholodenko et al. combination to include the conductive material covered with an insulative covering as taught by Crafts et al. because Crafts et al. teach of a conductive material covered with an insulative covering (col. 8, lines 3-14) which prevents deposition on the electrical contact increasing the efficiency of the overall apparatus.

14. Claims 16-18 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Woodruff et al., and further in view of Crafts et al. (5,807,469).

Woodruff et al. are as applied, argued, and disclosed above and incorporated herein but fail to specifically teach of a conductive material covered with an insulative covering.

Crafts et al. teach of a conductive material covered with an insulative covering (col. 8, lines 3-14).

Claim 16 is rejected because it would have been obvious and within the ordinary skill in the art at the time the invention was made to have modified Woodruff et al. to include the conductive material covered with an insulative covering as taught by Crafts et al. because Crafts et al. teach of a conductive material covered with an insulative

covering (col. 8, lines 3-14) which prevents deposition on the electrical contact increasing the efficiency of the overall apparatus.

Claim 17 is rejected because Woodruff et al. teach that the first means is a fluid seal (Fig. 4, numeral 50).

Claim 18 is rejected because Woodruff et al. teach that the second means is a fluid seal (Fig. 4, numeral 60).

15. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Woodruff et al. - Crafts et al. combination as applied to claim 19 above, and further in view of Kholodenko et al. (5,885,469).

The Woodruff et al. - Crafts et al. combination is as applied, argued, and disclosed above and incorporated herein but fail to specifically teach the use of at least three seals.

Kholodenko et al. teach the use of at least three seals (Fig. 2, numerals 116, 107, and 103).

Claims 19-20 is rejected because it would have been obvious and within the ordinary skill in the art at the time the invention was made to have modified the Woodruff et al. - Crafts et al. combination to use a third seal as taught by Kholodenko et al. because Kholodenko et al. teach of a third seal (Fig. 2, numerals 116, 107, and 103) which would have increased the overall sealing efficiency of the apparatus.

16. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crafts et al. (5,807,469) as applied to claim 22 above, and further in view of Kholodenko et al. (5,885,469).

Crafts et al. are as applied, argued, and disclosed above and incorporated herein but fail to specifically teach a plurality of conductive pads.

Kholodenko et al. each the use of a plurality of conductive pads (Fig. 2, numeral 120).

Claim 27 is rejected because it would have been obvious and within the ordinary skill in the art at the time the invention was made to have modified Crafts et al. to use a plurality of conductive pads as taught by Kholodenko et al. because Kholodenko et al. teach the use of a plurality of conductive pads (Fig. 2, numeral 120) which would have increased the contact efficiency between the conductor and the substrate.

Allowable Subject Matter

17. Claim 21 is allowed over the prior art of record.

18. The following is a statement of reasons for the indication of allowable subject matter:

The specific apparatus with a combination of an annular contact ring having a conductive body covered by an insulative covering, a first, second and third seal, and an electrolyte inlet positioned to supply electrolyte to an area of the substrate disposed radially inward of the first seal was not taught or fairly suggested by the prior art of record.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley Nicolas whose telephone number is (703)305-0082. The examiner can normally be reached on Mon.-Thurs. from 7am to 5pm.

The Supervisory Primary Examiner for this Art Unit is Roy King whose telephone number is (703) 308-1146.

The fax number for this Group is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Wesley A. Nicolas

June 10, 2003